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ABSTRACT

Skilled and unskilled writers were given detailed information about an urban planning project and then read a letter from an influential, interested, and potentially hostile writer requesting information about the project. Each writer was next asked to generate all the ideas needed to answer the letter, organize a framework for the letter from a collection of facts abstracted from the background information, and translate an experimenter-supplied outline into an actual letter. There were substantial objectively measurable differences between the two groups. Skilled writers used many more ideas, organized them earlier, and paid far more attention to the reader than did the unskilled writers. In addition, the skilled writers tended to organize their ideas as they generated them (which the unskilled writers did not do). (Materials used in the study are appended.) (Author)

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EXPERT-NOVICE DIFFERENCES IN THE WRITING PROCESS

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One of the hardest problems in education has been the evaluation of writing skills, largely because of the complexity of the written product itself. Unfortunately, many of our tools of evaluation attack this complexity by isolating the written work's simplest structures and then judging the work only in those terms. Thus the richest structural theories, like Chomsky's transformational grammar or Pike's tagmemics, provide strong measures of structural complexity and "grammaticality", but furnish little information about such issues as style, content, or appropriateness. The implications of these measures go well beyond evaluation, for they have led to pedagogical techniques, like transformational sentence-combining (Mellon, 1969; O'Hare, 1973) and generative rhetoric (Christensen, 1967), which simply teach the student how to generate certain kinds of complex structures in the hope that these structures will provide enough of a frame on which to hang good writing. In the absence of other evaluation tools, the success of these programs is almost a self-fulfilling prophecy - the criteria for success are so limited that it is hard to avoid meeting them.

What is missing in this approach is the fact that the writer must know more than how to generate a collection of forms - he must know how to use them; that is, his knowledge must be procedural as well as structural. In the past decade, many studies of the actual process of writing have appeared, but both the techniques and results of these studies are difficult to use in the evaluation of student writing. This is because nearly all of the researchers involved have been relying on case study methods, which provide a rich source of data but are so expensive to control that the results are often difficult to interpret. Perl (1978), for example, does an extensive event-counting analysis of five novice writers, but has no good writers to compare them to; most other studies, using techniques from post-performance interviews to detailed protocol analysis, are similarly lacking in comparison data. A recent exception, Flower and Hayes (1979), underlines the expense of doing such studies carefully; in order to compare four novices to five experts, the researchers analyzed the verbal protocols of each subject working on a complex writing task, each analysis taking many days of labor. Clearly such a technique, while making a valuable theoretical contribution, is of limited use in the evaluation of student writing in the classroom.

The case studies do have their uses, however - they provide theoretical frameworks for factoring the writing process into subprocesses that might be easier to evaluate by more conventional means. Such an approach would by no means capture the entire writing process - there is still the question of how the subprocesses are coordinated - but it would provide a major step forward. To use this approach, it seemed reasonable to begin with a breakdown of the writing process that was relatively simple; for this reason, I chose the model of Hayes and Flower (in press), concentrating on three of its major processes: 1) the generation of ideas; 2) the organization of ideas into some kind of framework; and 3) the translation of a

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framework into text.

Evaluating the mastery of these skills seemed to require a task complex enough to demand their extensive use, and yet sufficiently well-defined to ensure that all subjects would understand the problem similarly and have enough background information to deal with it. For these purposes, the task of writing a business letter seemed a good choice - the attitude of the letter's recipient could be carefully defined in advance, thus forcing the writer into a rhetorical stance, while the topic of the letter could be made narrow enough to allow the experimenter to brief all the subjects about it during the experiment.

For this reason a situation was set up demanding considerable tact from the writer: the advocacy of a particular system of public transportation for the handicapped to a citizen's group whose members had suffered bad experiences with similar systems. The subject's task was to reply to a letter from the chairman of this group. In order to standardize the subjects' knowledge of the task and test each of the skills of interest, the experiment was organized as follows:

1. The subject was told to play the role of the head of a private firm of urban design consultants. He was then given ten minutes to read the transcript of a simulated conversation between himself and one of his subordinates, who was filling him in on the details of the new transportation system. This provided all the subjects with a common body of knowledge about the task.

2. The briefing information was removed, and the subject was given the letter he would have to answer and told he could use the letter as a reference for the rest of the experiment. He was then asked to write down the ideas he thought he would need to answer the letter. This was the idea-generation task.

3. When the subject finished, his list of ideas was removed, and he was given a set of questions about the task and asked to answer them briefly. After ten minutes, the experimenter reviewed his answers with him to make sure that he understood the task well.

4. The question-and-answer sheet was then removed, and the subject was given a scrambled list of all the ideas presented in the conversation of Part 1. He was then asked to: 1) cross out all the ideas he thought irrelevant to the task; and 2) write a very simple outline for his letter (a model for this outline was presented). This was the idea-organization task.

5. When the task was completed, the subject's outline and the list of ideas were removed, and he was given another outline and asked to write the actual letter, using the outline as a starting point. This translation task was the last part of the experiment (the experimental materials are all presented in the Appendix).

Although this experimental design completely separates the processes of generation, organization, and translation from one another, it should be noted that writers do not usually do so; in fact, Flower and Hayes (in press) found that many writers jump back and forth among these processes frequently, generating a few ideas, organizing them, translating a few ideas into text, etc. For this study, however, the focus is on the subprocesses themselves, and not how they are organized into a whole, so the design should be adequate for that purpose.

The study ended up with ten expert and twenty novice writers. The experts were all college graduates with extensive writing experience, whose colleagues had singled them out as good writers; five of them earn their living by writing, and four more produce frequent scholarly works. Initially there were ten novices, all first-semester freshmen whose Verbal SAT scores were no greater than 500, all unpaid volunteers satisfying a course requirement.

Upon examining the novice data it became apparent that half of these writers tended to imitate the experimenter's wording of ideas very closely - the "mimics" - while the rest did not (the precise measurement of this imitation will be discussed below). For this reason it was decided to obtain enough novice subjects to have ten mimics and ten non-mimics to compare to the experts. The new subjects were obtained in the same way as before, but a shortage of volunteers made it necessary to include one second-semester freshman (mimic) and one subject with a VSAT of 540 (non-mimic) to complete the design. The two groups of novices did not differ significantly on VSAT scores: the mimics' scores ranged from 400 to 500, with a mean of 445; the non-mimics from 370 to 540, with a mean of 427 ($p>.40$, $t(18)=.771$). Except where there are strong differences between the two groups of novices, their data have simply been pooled.

Most subjects found the task straightforward, if not necessarily easy; only two were eliminated from the study. One, a novice, misunderstood the assignment and wrote a letter to the wrong person; the other, an expert, refused to complete the letter because he felt a telephone call would be more appropriate.

Results

Idea Generation

Both experts and novices varied widely in their styles of dealing with this task, some producing only a short numbered list of sentence fragments, others writing extended comments that were almost essays, longer than the final letter itself. The principal difference between experts and novices, however, was that experts were far more likely to make strategic comments about the information they were examining in addition to simply listing ideas. Thus 70% of the experts made comments like "Be sure to include this.", "Are there other alternatives?", etc., as opposed to only 15% of the novices ($p<.005$ by Fisher exact test, 1-tailed); 50% of the experts made such comments about their intended audience - eg., "Invite his contributions on this point." - as opposed to only 15% of the novices ($p=.056$ by 1-tailed exact test); and 60% of the experts made such comments about information not directly related to the audience - eg., "Why not a mixed plan like this?" - as opposed to only 10% of the novices ($p<.01$ by exact test). It seems reasonable, then, to claim that experts are much more willing than novices to engage in complex, explicit planning, though their plans are often tentative rather than final.

Idea Organization

This task provided the subjects with a numbered list of ideas and required them to produce a simple outline. The novices tended to use only the ideas presented, while most of

the experts added their own ideas as well; thus 80% of the experts introduced new ideas, versus only 15% of the novices ($p<.001$ by exact test). A further, though statistically much weaker difference, was the tendency of the novices to refer to the ideas in the list only by number, without even bothering to reword them. Thus, 55% of the novices used only numbers to refer to the subtopics in their outlines versus only 20% of the experts ($p=.074$ by exact test).

Translation into Text

This task provided the subjects the subjects with a simple outline and instructed them to "Write the actual letter, using the outline as a starting point (you may add or remove whatever ideas you wish)." As in the idea-organization task, here again the novices showed less originality than the experts, in many cases adhering closely to the outline. One of the most striking aspects of this conformity was the tendency of half the novices to imitate the actual language used in the outline. This was measured as follows: each of the ideas presented in the outline was rated separately; each time a writer expressed one of these ideas in his letter, his wording would be compared with the wording in the outline, and the number of words appearing in the same order in both would be counted. Thus the writer's "It would nice to have door-to-door service rather than waiting on a street." has seven words in common with the idea "door-to-door service versus waiting on the street" which appears in the outline. The total number of words the writer took from the outline in this manner was then counted, and divided by the total number of words in his letter. Of the original ten novices used in this study, five borrowed at least 16% of their words from the outline, while the others borrowed less than 8% each. Since these two groups of subjects - mimics and non-mimics - seemed to differ on several of the measures discussed below, it was decided to obtain five more subjects for each group to test these differences. This resulted in ten mimics, whose borrowing scores ranged from 15.3% to 39.5%, with a mean of 23.0%; and ten non-mimics, whose scores ranged from 2.3% to 12.7%, with a mean of 7.4%; mimics and non-mimics seemed to appear equally often - there was no surplus of subjects in either group. The scores of the expert writers ranged from 0.8% to 8.2%, with a mean of 4.1%; this was significantly less than even the non-mimic score ($p<.02$, $t(18)=2.633$). Much of this difference, however, is accounted for by the fact that the experts used more words overall (see below); if we count the number rather the percent of words borrowed, we find that the experts borrowed an average of 16.3 words, as opposed to the non-mimics' 19.5 ($p>.40$, $t(18)=.756$); on the other hand, the mimics borrowed an average of 47.8 words from the outline, more than twice the non-mimics' score ($p<.0002$, $t(18)=4.682$).

Another measure of conformity to outline was obtained by counting the number of ideas used in the letter. Of the 27 ideas listed in the idea-organization task, the outline in the translation task uses only the ideas numbered 14, 11, 21, 24, 12, 6, and 7 (see Appendix). The expert writers used an average of 3.6 of these ideas, as opposed to 4.0 for the non-mimics and 5.4 for the mimics. This effect was significant at the .05 level (a 1-way ANOVA yielded $F(2,27)=3.72$), as were the differences between the mimics and each of the other two groups (by Newman-Keuls test). On the other hand, the expert writers used 5.4 of the numbered ideas which were not included in the outline, as opposed to only 3.5 for the non-mimics and 1.7 for the mimics ($p<.01$, $F(2,27)=6.75$ by 1-way ANOVA); a Newman-Keuls

test showed a .05-level difference between the experts and the mimics, the other two differences just barely missing that level. Thus the experts not only drew fewer of their ideas from the outline, they drew more ideas from outside it.

Another place the experts drew ideas from was the letter they were asked to reply to. Figure 1 shows a list of 8 issues raised in that letter that a writer could mention or respond to. On the average, the experts responded to 4.2 of these, compared to only 2.4 for the novices ($p<.005$, $t(28)=3.21$; the scores of mimics and non-mimics were almost identical on these measures, so their data are pooled). This difference was largely due to the fourth and fifth items on the list. Where 70% of the experts mentioned that the old system of minibuses was badly run, only 25% of the novices did so ($p<.025$ by exact test); this is a crucial oversight, since the proposed new system also involves minibuses. Similarly, 70% of the experts mentioned the fact that the old systems were privately run, while only 10% of the novices did so ($p<.002$ by exact test); this gave the experts a way to contrast the new and old systems that the novices lacked. Thus the experts were far more likely than the novices to respond to the issues that actually concerned their audience. This effect was especially striking because both groups were responding to the same brief letter, which was available to them at all times.

The experts also tended to respond to their audience by personalizing their first paragraphs. Thus in 70% of the experts' letters, the subject of every predicate in the opening paragraph was either a personal pronoun or a noun phrase modified by a personal pronominal adjective ("your organization", "our proposal", etc.); this was true of only 15% of the novices ($p<.005$ by exact test).

The writers also differed in the amount of time they spent working on the letter, the mimics averaging 21.8 minutes, the experts 30.0, and the non-mimics 36.2 ($p<.05$, $F(2,27)=4.72$ by 1-way ANOVA). A Newman-Keuls test showed only the difference between the mimics and non-mimics to be significant ($p<.05$), which is consistent with the hypothesis that plagiarism saves time. Interestingly enough, even though the experts spent no more time than the non-mimics, their letters were considerably longer, averaging 419 words in comparison to the non-mimics' 260 ($p<.0005$, $t(18)=4.47$); the mimics' letters were even shorter, averaging 209 words ($p<.08$, $t(18)=1.86$). Thus overall length seems to be consistent with our other measures of content. The fact that the experts were able to produce so much more content than the non-mimics without taking any more time to do it underlines the differences between experts and novices.

Not surprisingly, the experts used more grammatical complexity than the novices (the two groups of novices showed no differences here). Thus the experts averaged 18.4 words per T-unit, compared to the novices' 15.9 ($p<.05$, $t(28)=2.30$); 80% of the experts used a semicolon, dash, or parentheses to combine two sentences, compared to only 20% of the novices ($p<.003$ by exact test); 1.32% of the experts' words were past participles used as adjectives (disregarding "handicapped" and "lift-equipped", which everyone used freely), compared to only .48% of the novices' words ($p<.0005$, $t(28)=3.95$); and 1.34% of the experts' words were "and", "or", or "but" used to join non-clausal phrases longer than single words (eg., "both the minibus and the public bus system"), compared to only .55% of the novices' words ($p<.00001$, $t(28)=5.48$).

An additional perspective on expert-novice differences was obtained by using a holistic rating procedure. The letters of the ten experts and the ten original novices in the study (five mimics and five non-mimics) were prepared for judging by typing them into a standard form and correcting all spelling, punctuation, and agreement errors, so the raters would not be influenced by these obvious cues. The twenty letters were then shuffled, and presented in a different random order to each of four raters. The raters were teachers of college English who had no prior knowledge of the writing task. Each rater was asked to read the background conversation and the letter from Mr. Beyer, and then told to rate the writers' letters as responses to that letter (they were not told about the rest of the task). Each paper was to be labelled "expert" or "novice", and then rated according to language use, coherence, explanation and development, effectiveness, and personal impression of the writer (see Figure 2). The results are summarized in Table 1; I will simply note here that each of the four raters discriminated strongly between the two groups on nearly every measure: only one novice received a single "expert" vote, while every expert received at least 1 (the average was 2.6); and in each of the five categories, the novices averaged around 2, corresponding to "only fair" performance, while the experts averaged better than 3, "moderately good". These differences can be only partly explained in terms of the measures discussed previously; thus, language use is probably a function of grammatical complexity (not to mention simple correctness), and effectiveness and personal impression are probably related to the issues of content and style raised earlier. But how exactly are coherence and explanation and development to be measured? The fact that the raters can discriminate so clearly on these criteria while we lack good objective measures underlines how far we have to go.

CONCLUSIONS

This study clearly demonstrated the value of careful task standardization by allowing us to use measures of content as well as measures of form to examine writing behavior. It is all the more significant, then, that in spite of all subjects' being given the same carefully detailed briefing and the same well-defined tasks, there were still striking differences in the behavior of experts and novices. Not only did the experts show greater stylistic and grammatical sophistication, as one might expect, but they were also far more likely to go beyond the narrow constraints of the task, formulating plans in addition to listing arguments, generating new ideas in addition to re-organizing old ones, writing letters whose ideas and language were drawn from beyond the suggested outline, focussing on the concerns expressed by their intended audience. These results raise some important pedagogical issues, since it is not clear to what extent the experts' behaviors can be taught to novices as simple rules of thumb and to what extent the effectiveness of such rules depends on more detailed kinds of knowledge (eg., of grammar, logic, rhetoric, etc.). In any case, carefully controlled writing tasks such as this one should provide a valuable tool in locating the sources of these difficulties.

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A WRITING PROBLEM

Your name is John Carmody, and you are the president of Urban Systems Design, a small consulting firm. Your firm has been hired by the city of Pittsburgh to evaluate its transportation system, and one of your projects is to reorganize the city's transportation of the handicapped. The people working on this project have already decided that a system of minibuses would be the city's best choice, but they have not yet written up their final proposal. In the next week you will have to write letters to various people explaining this proposal; you are now talking with the leader of the project to get the necessary information:

You: Harry, can you give me a few minutes?

Project Leader: Sure thing, John. What do you have in mind?

Y: I know your group's proposal won't be in final polished form for another month, but I've got to start talking to people about it this week. Can you answer some questions about what you've decided so far?

PL: Shoot.

Y: I understand that you looked at the option of installing power lifts on regular public buses so that handicapped people could avoid climbing stairs, and you rejected that option in favor of sending special minibuses to the homes of the handicapped individuals.

PL: Yes, that's right. The cost is about the same, and the minibus system is more convenient.

Y: I understood that the Bell agency's figures showed minibusing to be more expensive.

PL: Not by that much. Their figures say that it's 4 percent more expensive, Jack Riley's figures say it's 3 percent cheaper. Doesn't mean anything either way. You can't get better than 10 percent accuracy on these estimates anyway.

Y: Really? I'm surprised. I would have thought hiring a fleet of minibuses would be much more expensive.

PL: Well, remember that if you want to cover any reasonable part of the city with powerlifts, you've got to install the lifts in about one out of every three regular public buses. Now at ten thousand dollars per lift, plus maintainance, plus the salary of the guys who operate the lifts...

Y: Why can't the bus driver operate the lift?

PL: State law. The lift operator must be specially trained. You train the bus driver, then you've got to pay him an extra salary.

Y: I get the picture. Ok, now why do you say minibusing is more convenient?

PL: Well, first off, it's more convenient for all the <u>non</u>-handicapped. It takes at least thirty seconds per person to operate a powerlift, which creates delays, which upsets the bus schedules.

Y: Thirty seconds isn't that much. I would think it would only be a problem if the handicapped travel in groups.

PL: Well, for most areas you're probably right, but some places, like Oakland, where all the hospitals are, are going to create bottlenecks.

Y: How about the handicapped themselves? How convenient is minibusing for them?

PL: Pretty good, I think. Many of them are so badly handicapped that they can't get to a public bus stop at all without help. The minibus picks them up at their homes and delivers them right to their destinations. Also, you have to remember that Pittsburgh is a difficult place for the handicapped to get around in - it's very hilly, and once you get away from the shopping areas, the bus stops are not that close together.

Y: Surely a regular bus driver doesn't have to stop only at the official bus stops.

PL: No he doesn't, but many streets have no bus service at all, so that's still a problem.

Y: Yes, I see. What about waiting time? How long does a rider have to wait for a bus?

PL: Well, with the minibuses you have to phone the bus company to make arrangements. The best way to use this system is to have the user call a day in advance, since the city can't afford enough buses to run them like a taxi service.

Y: What if the user needed a bus the same day?

PL: It could probably be arranged, but he might have to wait several hours.

Y: So then in this case the regular bus system has the advantage.

PL: Well, yes and no. The city can't afford to put lifts in more than a third of its buses, which means that a handicapped rider can only use every third bus. In most areas, this means a wait of an hour or two. And of course, public buses don't wait for passengers who aren't there - if you miss the bus, you just wait some more. And of course, if a bus breaks down, they usually don't have another one to take its place. So you have to wait for the next one. And meanwhile, you're doing all this waiting on a street corner instead of at home.

Y: Good. I think I've got enough now to get me through the week. Thanks for your time.

Mr. Raymond G. Beyer
Chairman
Handicapped Citizens of Greater Pittsburgh
221a S. Craig St.
Pittsburgh, Pa. 15213

Mr. John Carmody
President
Urban Systems Design
1033 Commonwealth Ave.
Cambridge, Mass. 01719

Dear Mr. Carmody:

For many years, our organization has campaigned to improve Pittsburgh's public transportation of the handicapped; in the past, the only special transportation available here has been in the form of a few privately owned minibus services, some of which were very badly run. Now that Pittsburgh is redesigning its transit system, many of the handicapped people we talk with are afraid the city will adopt a system of these minibuses. Since your firm is actually designing the new system, I thought it reasonable to let you know our feelings, to invite you to consult with us at any time, and to ask you to please keep us informed.

Sincerely Yours,

PART 1

Make a list of all the ideas you think it might be useful to include in your letter; when you are done, put a check mark next to the ideas you think are worth keeping.

Two systems of transporting the handicapped are being compared - one is a fleet of special minibuses which only the handicapped will use; the other is to install powerlifts on some of the regular public buses, which everyone will use.

Answer each of the following questions in a few words:

1. Which system are you going to propose?
2. Which system costs more?
3. If powerlifts are used, how many regular buses will have them?
4. Which system is more convenient for the non-handicapped?
5. Where do you wait for a minibus? For a regular bus?
6. How do you get a ride on a minibus? On a regular bus?
7. How long do you have to wait for a minibus? For a regular bus?

PART 2

The following are some of the important ideas covered in your discussion of the busing project with the project leader. Cross out the numbers of the items you think are not worth putting in your letter. Then, in your own words, write a brief sentence or two summarizing the main points you want to make in your letter. For each point, write down one or two (or three) ideas that will help you make the point (you may copy the sentence numbers, or put the ideas in your own words, or make up new ideas). The final result might look like this example:

Main Point 1

idea 1

idea 2

idea 3

Main Point 2

idea 4

idea 5

1. The city can't afford enough minibuses to run them like taxis.
2. The city can't afford to put lifts in more than a third of its regular buses.
3. Pittsburgh is very hilly.
4. A rider has to wait for a regular bus on a street corner instead of at home.
5. A powerlift operator must be specially trained.
6. Regular buses won't wait for handicapped riders who are late.
7. If a regular bus breaks down, PAT usually can't send a replacement, so the rider has to wait for the next bus.
8. Regular bus drivers can stop for the handicapped anywhere on their routes, not just at the regular bus stops.
9. Both cost estimates are within a 10 percent margin of error, so the costs of the two systems are essentially the same.
10. If there are many handicapped people along a regular bus route, buses may be greatly delayed by picking them up.
11. Severely handicapped people will have trouble even getting to a regular bus stop.
12. In most areas, a rider will have to wait an hour or two for a regular bus with a lift.

13. To use a minibus, it is best to phone the bus company a day in advance to make arrangements.

14. Minibusing takes the user door-to-door, so he doesn't have to wait at a bus stop.

15. If you want to use a minibus the same day you call for it, you may have to wait several hours.

16. Two competing systems for transporting handicapped people are being compared - special minibuses just for the handicapped, versus regular PAT buses equipped with powerlifts; the design group prefers minibusing.

17. To get reasonable coverage of the city with powerlift-equipped buses, the lifts must be installed in at least one-third of all regular PAT buses.

18. If powerlifts are used, a handicapped rider will only be able to use every third bus.

19. Handicapped people tend to be concentrated in places like Oakland, where the hospitals are, so these areas may be bottlenecks in regular bus transportation if lifts are used.

20. If a regular bus driver operates a lift, he must be paid an extra salary.

21. Outside of the shopping areas, regular bus stops are not close together.

22. Jack Riley says minibusing is 3 percent cheaper than installing powerlifts.

23. Each powerlift costs $10,000 to install, and costs money to maintain.

24. Many streets have no regular bus service.

25. Pittsburgh is hard for the handicapped to get around in without motorized transportation.

26. Operating a lift takes at least 30 seconds per person.

27. The Bell agency says minibusing is 4 percent more expensive than powerlift busing.

PART 3

Write the actual letter, using the following outline as a starting point (you may add or remove whatever ideas you wish) :

Main theme: The minibus system is more convenient for the handicapped.

Supporting evidence:

- 1) door-to-door service vs waiting on the street
    - a) severely handicapped people will have trouble getting to regular bus stops without help
    - b) bus stops are often far apart, and many streets are not served at all
- 2) the rigidity of regular bus schedules is a nuisance
    - a) lift-equipped buses will only run every hour or two
    - b) regular buses won't wait for handicapped riders who are late
    - c) if a regular bus breaks down, PAT usually can't send a replacement, so the rider has to wait

SCORING BEYER'S LETTER

one point for each of the following:

1. mentioning the letter itself (eg., "your letter", "your communication", or some mention of the fact that Beyer made contact before)
2. mentioning Beyer's organization (eg., "your organization")
3. Beyer's organization has campaigned to improve Pittsburgh's transportation of the handicapped
4. Pittsburgh's current minibuses are privately owned
5. many of Pittsburgh's minibuses were badly run
6. many handicapped people are afraid the city will adopt a system of minibuses
7. invitation to ask questions (eg., "If you have any questions, feel free to write.")
8. promise to contact Beyer (eg., "a member of our firm will call you later this week")

Note: since item 8 implies item 7, anyone who responded to item 8 was scored as having responded to item 7 as well

Figure 1

RATING INSTRUCTIONS

Some of the business letters I have given you were written by people who have had very little experience in writing; some of these letters were written by people who have had a great deal of experience in writing. All of the letters are rough drafts, not finished works; I have corrected the spelling and punctuation errors myself, and typed the letters in a standard format.

Please read the letters and try to decide which ones were written by "experts" and which ones were written by "novices" - write EXPERT or NOVICE at the top of each letter. Also, please answer each of the following questions:

1. How well does the writer use language? ((a) very well, (b) moderately well, (c) only fair, (d) poorly)

2. How coherent is the letter? ((a) very, (b) moderately, (c) a little disorganized, (d) very disorganized)

3. How well does the writer explain and develop his ideas? ((a) very well, (b) moderately well, (c) only fair, (d) poorly)

4. How effective is the letter given this situation? ((a) very, (b) moderately, (c) only slightly, (d) not at all)

5. What is your overall impression of the writer as a person? ((a) very positive, (b) positive, (c) neutral, (d) negative, (e) very negative)

Figure 2

Holistic Rating Scores

		Rater 1	Rater 2	Rater 3	Rater 4	Mean
% of subjects called expert	Experts:	40***	90	70	60	65.0
	Novices:	0	10	0	0	2.5
language use	Experts:	3.5	3.0****	3.5	3.1*	3.3
	Novices:	2.4	2.2	2.1	2.4	2.3
coherence	Experts:	3.4	3.0	3.5	3.2	3.3
	Novices:	2.0	2.3	1.8	2.2	2.1
explanation and development	Experts:	2.9	3.0	3.5	3.0	3.1
	Novices:	1.5	1.4	1.7	1.3	1.5
effectiveness	Experts:	2.7	2.8	3.1	2.9	2.9
	Novices:	1.5	1.8	1.5	1.5	1.6
personal impression	Experts:	3.4	3.8	3.8	3.5	3.6
	Novices:	2.4	2.8	2.3	2.1	2.4

* $p<.15$ by t-test, 2-sided

*** $p=.043$ by 1-sided exact test; for all other differences in this row, $p<.006$ by exact test

**** $p<.02$ by t-test; for all other differences in this table, $p<.01$ by t-test

Table 1

Abstract

Expert-Novice Differences in the Writing Process

Marshall Atlas

Carnegie-Mellon University

Skilled and unskilled writers were given detailed background information (in the form of a transcribed conversation) about an urban planning project. They then read a letter from an influential, interested, and potentially hostile writer requesting information about the project. Each writer was then asked to:

1. generate all the ideas he felt he needed to answer the letter

2. organize a framework for the letter from a collection of facts abstracted from the background conversation

3. translate an experimenter-supplied outline into an actual letter

There were substantial objectively measurable differences between the two groups - skilled writers used many more ideas, organized them earlier, and paid far more attention to the reader than did the unskilled writers. In the final letter, for example, the skilled writer used many more words and sentences, referred to the reader more often (using the words "you" and "your"), and took more ideas from the letter he was answering and from the background conversation than did the unskilled writer. Furthermore, the skilled writer tended to organize his ideas as he generated them, which the unskilled writer did not do. The theoretical and practical implications of these results will be discussed.